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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/050,716	01/18/2002	Gregg D. Sucha	A8287	6834

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SUGHRUE MION, PLLC
2100 Pennsylvania Avenue, NW
Washington, DC 20037-3213

EXAMINER

NGUYEN, DUNG T

ART UNIT	PAPER NUMBER
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2828

DATE MAILED: 04/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

N.A

Office Action Summary	Application No.	Applicant(s)	
	10/050,716	SUCHA ET AL.	
	Examiner	Art Unit	
	Dung (Michael) T. Nguyen	2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 30-61 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 30-33, 35, 37-49 and 53-61 is/are rejected.
- 7) ☒ Claim(s) 34, 36 and 50-52 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 30-61 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 45-46 are rejected under 35 U.S.C. 102(b) as being anticipated by Ishiguro et al. (US5125066). Ishiguro show in Fig.4A-4B a fiber laser system (col.4, 1.24-32) comprising: a first rare-earth doped fiber (col.2, 1.55-57) operable to conduct optical energy; and a spool (bobbin) 41 around which said first fiber is wrapped, wherein said first rare-earth doped fiber is isolated from external environmental conditions in the enclosure (package 10) (col.4, 1.50).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishiguro et al. (US5125066) in view of Hicks (US4730886). Ishiguro et al. disclose all limitations of the claim and the single optical pump source 15 in Fig.2 (col.3, l.63-64) except for the second fiber. Hicks teaches a second fiber laser (col.2, l.14). For the benefit of two fiber lasers to act as the master laser and the slave laser which is capable of dithering, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Ishiguro et al. what is taught by Hicks.

Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishiguro et al. (US5125066) in view of Rahn et al. (US4884283). Ishiguro et al. disclose all limitations of the claim except for the piezoelectric transducer. Rahn teach the piezoelectric transducer (col.7, l.39-40). For the benefit of adjusting the

laser cavity length and the laser output frequency, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Ishiguro et al. what is taught by Rahn.

Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishiguro et al. in view of Fletcher et al. (US4025875). Ishiguro et al. disclose all limitations of the claims except for the dithering means. Fletcher teach the dithering means 16 and 38 (Fig.1). For the benefit of dithering the laser repetition rate of the fiber lasers, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Ishiguro et al. what is taught by Fletcher.

Claims 30, 33, and 53-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishiguro et al. (US5125066) in view of Kafka et al. (US4835778).

With respect to claims 30, 33, and 53-55, Ishiguro et al. disclose in Fig.4A-4B the fiber laser (col.4, 1.29-30) from an external environment in a temperature-controlled enclosure (package 10) (col.4, 1.50) wrapping onto a fiber spool (bobbin

41), and the fiber laser is operating while wrapping on the spool (col.4, 1.48-60). Ishiguro et al. lack the short pulse fiber laser. Kafka teach the short pulse fiber laser (col.1, 1.7). For the benefit of producing the fiber laser with the short pulses with low cost, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Ishiguro et al. what is taught by Kafka.

Claims 31, 35, and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishiguro et al. (US5125066) in view of Kafka et al. (US4835778) and further in view of Ethridge (US4212191). Ishiguro and Kafka disclose all limitations of the claims except for the acoustical damping. Ethridge teaches the acoustical damping (col.3, 1.2). For the benefit of preventing the possible damages to the fiber laser due to the pressure temperature changes, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Ishiguro and Kafka what is taught by Ethridge.

Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishiguro et al. (US5125066) in view of Kafka et al. (US4835778) and further in view of Patterson (US5818590). Ishiguro and Kafka disclose all limitations of the claims except for the thermal expansion of the spool matched to the fiber.

Patterson teaches the thermal expansion of the spool matched to the fiber (col.2, 1.23-25). For the benefit of eliminating the thermal stress between the spool and the fiber to stabilize the laser operation, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Ishiguro and Kafka what is taught by Patterson.

Claims 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishiguro et al. (US5125066) in view of Hicks (US4730886).

With respect to claim 37, Ishiguro show in Fig.4A-4B a fiber laser 1 wrapping on a fiber spool (bobbin 41). Ishiguro lack the second fiber laser wrapping on the same spool. Hicks teaches a second fiber laser (col.2, 1.14). For the benefit of two fiber lasers to act as the master laser and the slave laser which is capable of dithering, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Ishiguro et al. what is taught by Hicks.

With respect to claims 38-39, Ishiguro disclose in Fig.2 a single pump source 15 and a single enclosure 10 (package where the internal environment is controlled).

Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishiguro et al. (US5125066) in view of Hicks (US4730886) and further in view of Hutt et al. (US5717450). Ishiguro and Hicks disclose all limitations of the claims except for the independent control of the fiber lasers. Hutt teach the independent control of the fiber lasers 21 in Fig.1. For the benefit of controlling and maintaining the operational stabilization of the fiber lasers, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Ishiguro and Hicks what is taught by Hutt.

Claims 41 and 43-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishiguro et al. (US5125066) in view of Rahn et al. (US4884283).

With respect to claim 41, Ishiguro disclose a fiber laser 1 is placed in an enclosure package 10 (isolated from an external environment). Ishiguro lack the adjustment of the laser cavity length. Rahn teach the adjustment of the laser cavity

length using the piezoelectric transducer PZT (col.7, 1.39-40) (It is understood that by adjusting the cavity length the repetition rate of the laser could be altered.). For the benefit of adjusting the laser repetition rate in order to maintain a reliable and efficient working laser system, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Ishiguro what is taught by Rahn.

With respect to claim 43, Rahn disclose in Fig.3 the conditioning 43 and 49 of the drive signal 41 of the piezoelectric transducer 40.

With respect to claim 44, Rahn disclose in Fig.3 a sinusoidal drive signal 41.

Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishiguro et al. (US5125066) in view of Rahn et al. (US4884283) and further in view of Kafka et al. (US4835778). Ishiguro and Rahn disclose all limitations of the claims except for the short pulse laser. Kafka teach the short pulse laser (col.1, 1.7). For the benefit of producing the fiber laser with the short pulses with low cost, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Ishiguro and Rahn what is taught by Kafka.

Claim 57 is rejected under 35 U.S.C. 103(a) as being unpatentable over Duston et al. (US3806829) in view of Kafka et al. (US4835778). Duston disclose in col.11, l.23-26 the laser rep. rate is stabilized by controlling the temperature 9col.11, l.25). Duston lack the short pulse fiber laser. Kafka teach the short pulse fiber laser (col.1, l.7). For the benefit of producing the fiber laser with the short pulses with low cost, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Duston what is taught by Kafka.

Claim 58 is rejected under 35 U.S.C. 103(a) as being unpatentable over Duston et al. (US3806829) in view of Kafka et al. (US4835778) and further in view of Rahn et al. (US4884283). Duston and Kafka disclose all limitations of the claims except for the PZT and the voltage to the PZT. Rahn teach in Fig.3 the PZT 40 and the voltage 41 to the PZT 40. For the benefit of stabilizing the repetition rate of the fiber laser during operation, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Duston and Kafka what is taught by Rahn.

Claim 59 is rejected under 35 U.S.C. 103(a) as being unpatentable over Duston et al. (US3806829) in view of Kafka et al. (US4835778), further in view of Rahn et al. (US4884283) and even further of the admitted prior art. Duston, Kafka, and Rahn disclose all limitations of the claims except for the phase locked loop circuit. Prior art teaches the phase locked loop circuit (para.0109, 1.8). For the benefit of the control of holding the average of the laser repetition rate during operation, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Duston, Kafka, and Rahn what is taught by Prior art.

Claims 60-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishiguro et al. (US5125066) in view of Horiguchi et al. (JP402002698). Ishiguro show in Fig.4A-4B a fiber laser system (col.4, 1.24-32) comprising: a first fiber (col.2, 1.55-57) operable to conduct optical energy; and a spool (bobbin) 41 around which said first fiber is wrapped, wherein said first fiber is isolated from external environmental conditions in the enclosure (package 10) (col.4, 1.50). Ishiguro lack the fiber is held the near and above ambient temperature. Horiguchi teach the fiber

is held the near and above ambient temperature (Abstract). For the benefit of obtaining the fiber laser with stable laser operation even with ambient temperature fluctuations, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Ishiguro what is taught by Horiguchi.

Allowable Subject Matter

Claims 34, 36, and 50-52 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Communication Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung (Michael) T Nguyen whose telephone number is (571) 272-1949. The examiner can normally be reached on 8:30 - 17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Min Harvey can be reached on (571) 272-1835. The fax

phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3329.

Michael Dung Nguyen

Allowable Subject Matter

Claims 51-52 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

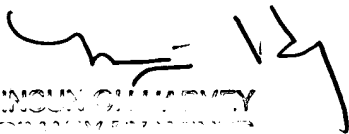
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Michael Dung Nguyen



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